

Patent Claims

1. Handling system (1) for lifting and/or moving a person from a first position to another, said system comprising
- 5 a frame including a base frame (2a, 2b, 5, 18a, 18b) and a lifting frame (7) being part of a lifting device for said person,
- 10 at least three wheels (3a, 3b, 4a, 4b) positioned in different parts of said base frame and allowing the handling system to be moved over a surface from said first position to another,
- at least one user interface (27-34) allowing said person or another person to control the handling system (1),
- 15 at least one of said wheels (3a, 3b) being directional controllable from said at least one user interface.
- c h a r a c t e r i s e d i n t h a t
- 20 each of said wheels (3a, 3b, 4a, 4b) are mounted pivotally around a vertical axle (va1) for said wheels.
- 25 2. Handling system (1) according to claim 1 c h a r a c t e r i s e d i n t h a t the direction of said at least one wheel (3a, 3b) is controllable within a constraint angle such as between nil and 90 degrees in relation to a forward direction of said handling system (1).
- 30 3. Handling system (1) according to claim 1 or 2 c h a r a c t e r i s e d i n t h a t the angle of direction of said at least one wheel (3a, 3b) is substantially nil or 90 degrees in relation to a forward direction of said handling system (1) e.g. exactly 0 and 90 degrees, respectively.

4. Handling system (1) according to any of the claims 1 to 3 characterised in that the direction of any of said wheels are directly controlled.
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5. Handling system (1) according to any of the claims 1 to 3 characterised in that some of said wheels (3a, 3b) are directly controlled wheels and some wheels (4a, 4b) are free directional wheels.
- 10 6. Handling system (1) according to claim 5 characterised in that said free directional wheels (4a, 4b) are controlled by the movement of said system.
- 15 7. Handling system (1) according to any of the claims 1 to 6 characterised in that said system (1) comprises at least two free directional wheels (4a, 4b) and at least one directional controlled wheel (3a, 3b) such as the two rear wheels of the system.
- 20 8. Handling system (1) according to any of the claims 1 to 7 characterised in that the system is directionally controlled by at least one controller (13) controlling the direction of said directional controlled wheels (3a, 3b).
- 25 9. Handling system (1) according to claim 8 characterised in that said controller (13) is connected to said directional controlled wheels by rods, electric actuators or similar connection arms ().
- 30 10. Handling system (1) according to any of the claims 1 to 9 characterised in that at least one controller (12) controls the width horizontally between the right and left base frame parts (2a, 2b) by pivoting said parts around vertical axles (va2) for said parts.

11. Handling system (1) according to any of the claims 8 to 10 characterised in that said controllers (12, 13) is wire or wireless connected to said user interface (27-34) e.g. including a control device (27).

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12. Handling system (1) according to any of the claims 1 to 11 characterised in that said user interface includes control means (33) such as computer means and storage means comprising predefined motor control data or ramps for controlling said at least one electric motor (14a, 14b).

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13. Handling system (1) according to any of the claims 1 to 12 characterised in that said user interface includes communication means e.g. for communicating system or person data.

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14. Handling system (1) according to any of the claims 1 to 13 characterised in that at least one electric motor (14a, 14b) is connected to at least one of said wheels (3a, 3b).

20 15. User interface for a handling system (1) according to any of claims 1 to 14 for lifting and/or moving a person from a first position to another,

characterised in that

25 said user interface (27-34) comprises control means capable of converting the handling of said interface by said person or another person to directly or indirectly control of the direction of each of the wheels (3a, 3b, 4a, 4b) of said handling system by pivoting the wheels around a vertical axle for said wheels (val).

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16. User interface according to claim 15 characterised in that said user interface further controls the power directed to one or more of the wheels in response to the handling by said person or another person.
- 5 17. User interface according to claim 15 or 16 characterised in that a control device (27, 34) of said user interface includes at least one joystick or similar control stick.
- 10 18. User interface according to any of the claims 15 to 17 characterised in that one or more buttons (31) converts said control device (27, 34) from a status of substantially forward movement to a sideways movement e.g. a direction of approximately nil degrees or 90 degrees in relation to a forward direction of said handling system (1).
- 15 19. User interface according to any of the claims 15 to 18 characterised in that control means (33, 34) includes computer means and storage means comprising predefined motor control data or ramps.
- 20 20. User interface according to any of the claims 15 to 19 characterised in that said control means (33, 34) includes communication means e.g. for communicating system or person data.
- 25 21. User interface according to any of the claims 15 to 20 characterised in that said interface (27 to 34) controls a controller (13) to control the direction of said directional controlled wheels by pivoting the wheels around a vertical axle for said wheels and a controller (12) to control the width horizontally between the right and left base frame parts of said handling system by pivoting said parts around vertical axles for said parts.
- 30 22. Method of handling a person, such as lifting or moving the person from a first position to another, with a handling system including at least one user interface, said method comprises the following steps:

lifting the person by a lifting device of said handling system,

moving the person in said handling system,

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directly or indirectly controlling the direction of each of the wheels of said handling system by said at least one user interface,

in which the control is performed by the person being handled or an assistant.

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23. Method of handling a person according to claim 22 characterised in that said movement is achieved by powering one or more of the wheels of the system with one or more electric motors connected to said one or more wheels.

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24. Method of handling a person according to claim 22 or 23 characterised in that the direction of said at least one wheel is controlled within a constraint angle such as between nil and 90 degrees in relation to a forward direction of said handling system.

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25. Method of handling a person according to claim 24 characterised in that the direction of said at least one wheel is substantially nil or 90 degrees in relation to a forward direction of said handling system e.g. exactly 0 and 90 degrees, respectively.

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26. Method of handling a person according to any of the claims 22 to 25 characterised in that the handling of said interface by said person or another person directly or indirectly controls the direction of each of the wheels of said handling system by pivoting the wheels around a vertical axle for said wheels.

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27. Method of handling a person according to any of the claims 22 to 26 characterised in that said handling controls the power directed to one or more of the electric motors connected to said wheels.
- 5 28. Method of handling a person according to claim 27 characterised in that said at least one electric motor is controlled by a control device of said user interface includes at least one joystick or similar control stick.
- 10 29. Method of handling a person according to claim 27 or 28 characterised in that said at least one electric motor is controlled by said user interface including computer means and storage means comprising predefined motor control data or ramps.
- 15 30. Method of handling a person according to any of claims 22 to 29 characterised in that at least one controller (13) controls the direction of said directional controlled wheels (3a, 3b).
- 20 31. Method of handling a person according to claim 30 characterised in that said controller (13) controls said directional controlled wheels by rods, electric actuators or similar connection arms.
- 25 32. Method of handling a person according to any of claims 22 to 31 characterised in that at least one controller (12) controls the width horizontally between the right and left base frame parts of said handling system by pivoting said parts around vertical axles for said parts.